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EXAMINER

KUMAR, PANKAJ

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| ART UNIT | PAPER NUMBER |
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2631

DATE MAILED: 02/05/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/451,108

Applicant(s)

KIM, WANG RAE

Examiner

Pankaj Kumar

Art Unit

2631

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11/27/2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9, 12-15 and 19 is/are rejected.
- 7) ☒ Claim(s) 10, 11, 16, 17, 18, 20, 21 and 22 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 11/27/2002 have been fully considered but they are not persuasive.

2. The office respectfully traverses applicant's assertion on pages 5-7 that Kumar has only two phase shifters and not three phase shifters. Applicant has agreed that elements 18 and 19 in fig. 1B of Kumar are two phase shifters. As indicated in the prior office action, the addition of a phase shifter to element 11 in Kumar on fig. 1A was explained in Kumar by the quote in the prior office action in paragraph 4. The addition of a phase shifter to element 11 in Kumar based on Kumar's along with phase shifters 18 and 19 constitute Kumar teaching three phase shifters. In Kumar, figures 1, 1A and 1B show how the output of figure 1A goes into figure 1B.

3. Another argument the office can make is that since phase shifters are indicated with Lange couplers in fig. 1B, they can also be with the Lange coupler in figure 1A since it has been held that rearranging parts of an invention involves only routine skill in the art. In re Japikse, 86 USPQ 70.

4. The office respectfully traverses applicant's argument on page 8. Kumar's element 11 in figure 1A has a phase shifter as explained above and in the prior office action and in the quote from Kumar also cited in the prior office action. Even though elements, 11, 12 and 13 are couplers, they are still shifting the phase not only because of the phase shifter on element 11 but also because the output of elements 11, 12 and 13 have a phase difference (Kumar shows a 90 degree phase differential in element 11 and 180 degree phase differential in elements 12 and 13 in figure 1A) and thus there was a shift in phase.

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5. The office respectfully traverses applicant's assertion on page 9 that Belcher does not have a prescribed delay as claimed by the applicant. Even though Belcher does not explicitly have a delay circuit, it is inherent for delays to exist in multiple components of Belcher. These inherent delays in the multiple components may or may not be random but still the delay, by its very nature, is for a prescribed time period which may or may not change.

6. The office notes that as per degree ranges, it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. In re Aller, 105 USPQ 233.

Response to Amendment

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-7, 9, 12, 13, 14 are rejected under 35 U.S.C. 102(e) as being anticipated by Kumar et al. USPN 5852389.

3. For claims 1-7, 9, 12, see prior action for details.

4. Claims 13, 14 are discussed in respect to claims 1-7, 9 and 12.

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5. Claims 15, 19 are rejected under 35 U.S.C. 102(b) as being anticipated by Belcher USPN 5760646.

6. As per claim 15, Belcher teaches a circuit for a high power amplifier (Belcher Field of Invention: "... adaptive RF power amplifier ..."), comprising: a divider (Belcher fig. 2: 101) to divide an input signal into a first signal (Belcher fig. 2: 105) and a second signal (Belcher fig. 2: 107); a vector modulator (Belcher fig. 2: 110) to receive the first signal (Belcher fig. 2: 111 is a modified version of 105) and a control signal (Belcher fig. 2: 113 is a modified version of 107) and output a vector modulated signal (Belcher fig. 2: output of 110); an amplifier to amplify the vector modulated signal (Belcher fig. 2: 116); a directional coupler (Belcher fig. 2: 123) to receive a signal from the amplifier and generate a reference signal; a delay to delay the second signal by a prescribed period of time (inherent for various components to cause delay); and a fast phase-amplitude controller (Belcher fig. 2: 180) to compare amplitudes and phases of the reference signal (Belcher fig. 2: input 181) and the delayed second signal (Belcher fig. 2: 107; inherent for various components to cause delay) to provide the control signal.

7. As per claim 19, see prior action for details.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kumar.

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See prior action for details.

Allowable Subject Matter

9. Claims 10, 11, 16, 17, 18, 20, 21 and 22 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

10. The following is a statement of reasons for the indication of allowable subject matter: The art of record does not suggest the respective claim combinations together and nor would the respective claim combinations be obvious with the following underlined portions:

11. As per claims 10, 11, 16, 17 and 18, see prior action for details.

12. As per claim 20, the vector modulator of claim 1, wherein the first amplitude invariant phase shifter adjusts a distribution of signals outputted from a combiner (not in Kumar) in a polar coordinate system by adjusting phases of incoming signals.

13. As per claim 21, the vector modulator of claim 13, wherein the first, second, and third amplitude invariant phase shifters respectively shift within first, second, and third prescribed shifting ranges (not in Kumar).

14. As per claim 22, the vector modulator of claim 21, wherein the combiner calculates a vector sum, wherein the first amplitude invariant phase shifter delays the input signal by fixed intervals, within the first prescribed shifting range, wherein the second and third amplitude invariant phase shifters delay the first and second channel signals by first and second phases within the second and third prescribed shifting ranges (not in Kumar) respectively, and wherein the second and third prescribed shifting ranges are variable.

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Conclusion

15. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Pankaj Kumar whose telephone number is (703) 305-0194. The examiner can normally be reached on Monday through Thursday after 8AM to after 6:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chi H. Pham can be reached on (703) 305-4378. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9314 for regular communications and (703) 872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3800.

PK
February 3, 2003


CHI PHAM
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600 2/5/03